s/013/002

UMC

UINTAH MOUNTAIN COPPER COMPANY
SUNSHINE QUARTZ/HEMATITE CLAIMS PROJECT

ENGINEERING ANALYSIS REPORT

PHASE 1 EXPLORATORY TEST PIT
EXCAVATION & RECLAMATION DEVELOPMENT PROGRAM

DUCHESNE COUNTY, UTAH

SEPTEMBER 26, 1997

Sunshine\Hematite Claims Project
Engineering Analysis Report

Phase I Exploratory Test Pit
Excavation & Reclamation Development Program

Uintah Mountain Copper Company

INTRODUCTION

The first phase of a multi-year, multi-phase exploratory test pit and reclamation development program was performed in 1996 and 1997 on the Uintah Mountain Copper Company's Sunshine Quartz and Hematite claims properties. These small-scale projects are intended to provide economic and environmental reclamation data for estimating the mining potential of the project.

The property is located about 25 miles northwest of Duchesne, Utah, in Township 2 North and Range 6 West, Section 15 and is directly west of Moon Lake in the Slate Creek Canyon region. An existing 6.5 mile unimproved graded access road extends directly to the ore body. The original mine diggings are at the 10,200 to 10,400 foot elevation, with surface outcrops of hematite ore observable intermittently along 600 feet of exposures adjacent to the access road, and over an additional 1500 feet of hillside. Five sample borings deep-drilled into the deposit in 1978 and thirty-six additional near-surface core holes added in 1994-95 defined proven deposits of 54,000 tons of iron oxide (hematite) ore within 3 of the 30 company's claims. Possible resource estimates encompassing all claims and performed by various geologists since 1978 range from 206,000 to 750,000 tons. The refined ore produces a unique, high-grade natural pigment that Uintah Mountain Copper Company intends to produce for use with cosmetics, plastics, artist paints and other specialty products.

PURPOSE OF ANALYSIS

The purpose of this analysis report is to:

a. Describe Phase 1 test pit and reclamation work.

b. Evaluate results of Phase 1 test pit development program.

c. Discuss the effectiveness of ore removal, hauling and reclamation techniques.

d. Provide recommendations for future development activities.

BACKGROUND

A three-year phased exploratory test pit program with progressively expanding development areas for each phase was proposed by the Uintah Mountain Copper Company (UMCC). The scope of proposed work is documented in the 1996 Revisions to the Plan of Operation dated January 1996 and Addendum No. 1 to the 1996 Revisions to the Plan of Operations dated May 21, 1996.

Phase 1 work was approved by United States Forest Service (USFS) representatives during meetings held on April 29, 1996, June 3, 1996 and April 18, 1997. The scope of Phase 1 was proposed as follows: Excavation of a small 20 to 25-foot wide by 20-foot long and 7-foot deep test pit in the existing disturbed area adjacent to the service access road and under the main claim spur road (Figure 1, Photo A). Overburden and ore at this location were estimated at 60 cubic yards (120 tons) and 44 cubic yards (95 tons), respectively. 1996 Phase I activities were subsequently modified (via internal UMCC memo dated October 3, 1996) to allow for excavation of only a portion of the area during 1996 because of rapidly deteriorating weather conditions. The remainder of the work was to be performed after seasonal snow melt and runoff in mid-1997.

UMCC proposed a multi-phased test pit program to (a) verify depth and location of geologic strata and faulting identified during the drilling programs, (b) assess the accuracy of drill hole data interpolations for calculating hematite ore deposits/reserve, (c) determine the probable depth of overburden for future mining and (d) provide for small scale reclamation projects to measure and document the viability of proposed reclamation methods and to extrapolate results to larger operations.

WORK PERFORMED

In October 1996, an approximate 10-foot by 10-foot by 5-foot deep pit was excavated near the northwest end of the Phase 1 area, with approximately 10-12 tons of hematite ore removed for testing. Snowfall halted this work and further activities were to be postponed until the next season for both safety and natural resource concerns. Ore was excavate by an Allis Chalmers HD6G 1-1/2 cubic yard track-mounted front-end loader and was hauled off the site via 12-ton capacity, 10-wheel truck. Overburden was stockpiled adjacent to the pit for future use in reclamation work.

Pit excavation activities resumed on September 5, 1997, with pit shape and area modified in the field to minimize overburden removal and expedite work (material volumes were kept close to those originally planned for Phase 1). The revised Phase 1 pit was excavated 12-15 feet wide, 45 feet long and varied from 0 to 12 feet in depth along the face of the hillside (Figure 2), with approximately 133 cubic yards of subsurface material disturbed. 43 tons (31 cy) of medium to high-grade sample ore were stockpiled on a wide accessible section of the access road about 600 feet from the test pit and approximately 55 tons (40 cy) of medium to low grade ore intermixed with an approximately same quantity of overburden rock and soil remained stockpiled adjacent to the excavation. Ore was excavate by a 1-1/2 cy track-mounted front-end loader, with all work completed on September 6, 1997. Construction activities were performed by Kelly Bird Contracting of Bluebell, Utah.

Test reclamation section construction and sample ore haul activities were performed on September 12 and 13, 1997. 35.7 tons of sample ore were hauled via 10-wheel dump truck in three loads from stockpile to a laboratory facility in Lehi, Utah. The remaining estimated 7 tons of sample ore could not be removed because of time constraints and was placed within the inside edge of the road where it would be protected from erosion. A stair-stepped, three-tiered 26 cubic yard gabion wall (maximum 9 feet in height) was erected and backfilled with the intermixed medium to low grade ore and native overburden materials previously noted. Approximately 25 cubic yards of additional fill (50% hematite ore and 50% native rock and soil) needed for terrace backfill was obtained by lowering and re-contouring the spur road slope. The 3-foot high gabion baskets were inter-tied with adjacent baskets next to, above, and below each other to provide additional stability.

Rock fill for gabion baskets (Hilfiker ArtWeld Gabions - 3"x3" 11 gauge welded wire fabric) utilized a combination of hand-selected rock (4-inch to 12-inch in maximum dimension) from the excavation area (matching texture and color of the slope) and nearby talus slope residual limestone. Talus material ranged from a maximum dimension of 24-inches to fine soils, with predominately 4 to 8-inch diameter material. Gabions were filled with varying quantities of these different materials to observed the effect of their use. Filter fabric originally planned was not included in this gabion test section since backfill material was composed primarily of material that would not readily filter into the gabion mesh (large rock and clayey hematite ore).

Backfill behind the bottom two gabion tiers was placed with a 1-1/2 cubic yard track-mounted front end loader. No addition of moisture was needed for compaction since rainfall prior to and during these activities had pre-moistened soil and ore materials to a condition at or somewhat above optimum moisture. Backfilling behind the upper-most tier and contouring of the terrace above the wall was performed with a track-mounted D7 Caterpillar dozer. Each 3-foot lift was backfilled and compacted prior to construction of the next level. The equipment provided compactive effort, with passes continued until gabion movement at the level being placed was observable. Gabions were allowed to move about 2 to 6-inches outward from the hillside face to assure particle interlock and adequate compaction had occurred. No compaction testing was performed.

500 to 1000 linear feet of access and spur roads are to be seeded on October 3-4, 1997. Seed to be applied is a USFS approved *mix formula at the vendor's recommended rate of 3 pounds per 1000 square feet of area.

* 33% each of Nezpar Indian rice grass, Secar Blue Bunch wheat grass and Sheep fescue.

RESULTS SUMMARY

Details of the quantitative work measures of Phase 1 are provided in Table 1. Values estimated or planned quantities as referenced in the POO documents are provided for comparison with actuals quantities. Data and calculations are in Appendix A. All volumes noted are in-bank or compacted.

Table 1 - Results of Phase I Test Work

Work Item	Quantity		Rate		Equipment(5)	
	Planned	Actual	Est	Actual	Proposed	Actual
Overburden Excavation	70 cy	52 cy	10 cy/hr	5.6 cy/hr	2.5 FEL/D	1.5 FEL
Sample Ore Excavation	120 tons(1)	108 tons	2 t/hr	8.1 t/hr	2.5 FEL	1.5 FEL
Sample Ore Haul	95 tons	46 tons(2)	2 t/hr(4)	4.7 t/hr(4)	5 TD	12 TD
Gabion Wall Erection	25 cy	26 cy	0.25cy/mh	0.4cy/mh	2.5 FEL/D/5 TD	1.5 FEL
Backfill & Contour	70 cy	75 cy(3)	10 cy/hr	21 cy/hr	2.5 FEL/D/5 TD	1.5 FEL/D

(1) Includes area where boulder occupied est. 4.6 cy (10-ton) volume in ore strata. Revised from 95 tons in Addendum #1 to POO.

(2) Excludes 55 tons of low-grade hematite ore used as backfill and 7 tons of high grade ore not hauled.

(3) Includes 23 cy of low-grade hematite ore used as backfill.

(4) Round trip time to and from camp site.

(5) Equipment Abbreviations:
2.5 FEL = 2.5 cy rubber tired front end loader
1.5 FEL = 1.5 cy track mounted front end loader
D = D8 Cat Bulldozer
5 TD = 5 ton rear dump truck
12 TD = 12 ton, 10-wheel rear dump truck

There were 4 test cores drilled during the 1994-95 exploratory program within the Phase 1 test pit area. These borings, along with observations of surface ore outcrops, were used to predict the volume of ore present prior to pit excavation. 35 rankings of ore quality (logged by a geologist during coring) and 17 laboratory assays performed on samples from these borings were used to predict overall ore quality in the pit area. The following results were determined by the Phase 1 test pit program:

- Test pit excavation and Borings DDH 8 & 9 showed ore swelling to a maximum depth of 8-9 feet through the pit center, with a thick bed of rich, earthy hematite continuing into the claims property on the west side of the pit (Photo B).
- Borings DDH 12 & 13 predicted ore would pinch out, with only low-grade hematite filtering into thinly-bedded limestone joints at the south end of the pit. This was confirmed during pit excavation.
- The general shape of the ore body closely matched the predicted profile, with the exception of a single 5-foot diameter boulder embedded in the subsurface just north of borings DDH 8 & 9. This rock mass produced an occlusion that

inhibited hematite percolation into the thinly-bedded strata, reducing ore estimates in the area by 10 tons.

- Drill hole and geologic predictions estimated the Phase 1 area should contain 44% of medium-high grade iron oxide and 56% medium-low grade ore. Test pit quantities showed the ore distribution to be 40% and 60% medium-high and medium-low grade ore, respectively.

At the time of this report, one representative 948 pound composite sample of medium-high grade ore from the Phase 1 test pit area had been processed for analysis and pilot run work. This ore (crushed and blended) showed an average iron oxide content of 53 percent. Additional pilot runs are anticipated and will be compared to this value. Prediction made for this area based upon drill hole and assay results indicated a medium-high grade ore weighted average of 68% and a numerical average of 56%, with a predicted average of 60%. (Note: Assay and analysis performed on 9.76 tons of medium to low grade ore sample removed in 1996 showed an average ore quality of 37.1% iron oxide from 17 representative tests, compared to predictions of 20% average iron oxide from the drill logs and engineering analysis. This sample is still considered preliminary and may not be representative of all medium to low grade ore).

DISCUSSION AND CONCLUSIONS

Estimated quantities excavated ore and reclamation backfill were very close to actual amounts. Volumes and weights differed by about 10 percent (within accepted tolerance). Overburden was less than anticipated. The rate at which the work was performed was significantly faster than estimated and was performed with smaller than anticipated equipment. The following discussion will detail these conclusions.

Test Pit Development

Table 1 shows a drill-predicted estimates of 70 cubic yards of overburden and 120 tons (50 cubic yards) of hematite ore within the Phase 1 pit area. Actual measured and estimated quantities found 52 cubic yards of overburden and 108 tons (44 cy) of ore. Most of these differences can be accounted for from field alterations in pit dimensions and the major boulder occlusion within the ore body. More importantly, these numbers place actual to expected ore quantities about 10% of each other, with actual and expected overburden to ore ratios of 1.36 and 1.18 respectively. It is important to note that this unexpected low actual overburden-to-ore ratio made reclamation difficult since an inadequate volume of material was available for fill. Medium to low grade ore had to be placed back into the pit to make up the difference and complete reclamation work.

In terms of ore quality found within the test pit, high to low grade ore ratios were found to be within 10% of drill-inferred values (44% estimated versus 40% actual), and preliminary bulk tests of iron oxide content within medium to high grade composites are about 7% lower than expected, or a 12% difference. Both sets of results are in the range of the estimated 10% tolerance of predicted values.

Stockpiling of ore prior to loading added another handling step, but improved overall operation efficiency by quadrupling the rate of ore removal and allowing a smaller, more economical and less intrusive loader to be used for pit operations. Hauling has always been considered the most time consuming part of the operation and the critical path item for estimating costs and schedules. Stockpiling ore de-coupled excavation and hauling activities and allowed each to be performed more rapidly without schedule impact on the other. Additionally, stockpiling allows hauling to be scheduled at more favorable times of the day where weather would not create safety concerns to drivers or road erosion (natural resource) concerns to the road surface.

Hauling and Access Road

Use of 10-wheel dump truck produced multiple advantages for the program; by doubling ore haul rates and reducing trip traffic on the access road. It was found that, with no additional road improvement, larger trucks could safely be brought within about 1000 feet of the main ore operations area. Cycle time between the ore stockpile (about 600 feet from the source) and the truck loading area ranged from 5 to 10 minutes, depending upon size of load and weather condition. With additional minor road improvements, these larger trucks can safely drive to the stockpile location.

10-wheel trucks travel slightly slower than anticipated 5-ton trucks (8.5 mph versus 6.5 mph), but do no additional road damage. Observation of road conditions after large truck travel showed the slower, heavier trucks compacting loose surfaces on the road and producing divots only where the road was saturated. This work and previous experience demonstrates that it is very important to maintain a well drained surface to prevent erosion and protect against damage. It was observed by those at the site who have been present during previous site development projects that more frequent trips by smaller pickup trucks have resulted in more road impacts since soft, saturated road sections are affected by all types of vehicles to about the same degree.

In well-drained areas (more than 90% of the access road), vegetation growth along with cobble rock plating cover the access road. Observations of road surface conditions were made prior to the start of haul and reclamation work and after completion of all described activities. Although grasses and tree seedlings in the wheel paths had been pressed onto the ground surface, nearly all vegetation was actively growing and appeared to be rebounding to original condition almost immediately after traffic ceased. Vegetation growth has been very aggressive over the past three years on the road surface and may require some trimming in the future to allow safer vehicle access. The road in many areas appears more like a forest field than an unimproved access road. Isolated poor drainage conditions appear on less than 10% of the road surface and are related to drainage features crossing the road path. There is less than 100 linear feet of rutting along the entire 6.5 mile access road.

Reclamation

Gabion construction took more labor man-hours than anticipated, but required far less and smaller equipment than included in the original estimate. Construction rate of gabion baskets walls was estimated at 0.25 man-hours per cubic yard of gabion erected. Actual work took 0.40 hours per gabion cubic yard (37% more time). This delay was primarily the result of slower than estimated gabion pad preparation and basket filling operations. The narrowing of the pit area produced a more confined space and prevented the loader from performing most of the preparation (requiring hand labor). Additionally, gabion rock was either hand-picked or sifted from the surrounding slopes with laborers hand-filling the first few baskets. It was determined that backfill rock should be stockpiled and prepared prior to labor arrival to expedite basket construction.

The small 1-1/2 cy track mounted loader was very capable of supporting most gabion fill and compaction activities. A larger loader would not have provided a significantly greater production rate and would possibly been more difficult to work with in the confined areas available. Track-mounted vehicles appear to provide the safest working conditions on these slopes and should be the primary type of construction equipment used on this site. The D7 Cat dozer rapidly contoured the slope and compacted the backfill.

The gabion baskets provided excellent hillside stability and were remarkably easy to install in the remote site conditions encountered. Even with over 12 feet of adjacent fill (3 feet higher that the top of the highest gabion), the wall supported all backfill and the weight of the D7 dozer working at the fill outside edge. Layering the backfill in compacted lifts helped maintain stability as the fill increased in height. The majority of the wall was constructed in a single shift with a relatively inexperienced labor crew who had not performed this kind of work before. In addition, the rock filled basket wall blended with the surrounding natural features providing a positive aesthetic appearance (see Photos C & D).

The gabion wall test section was placed within an active draw that runs with snow melt. Typically, gabion walls under water loads are installed with extra reinforcement or are toed into the slope to prevent side erosion and undercutting. At the time of construction, sufficient baskets were not available on site to do this additional work, so large boulders (12 to 48-inch in largest nominal dimension) were placed on the south end of the wall to act as lateral support. Seasonal snow melt will give a severe test of wall strength and stability in the most adverse of conditions. It is anticipated that some additional work will be needed next season to provide minor wall repair, and more gabion baskets can be added at that time to provide supplemental stability.

Rock fill variations used with the baskets appeared to have varying degrees of success and/or difficulty in placement and use. The most stable (and time consuming) baskets were those filled by hand with 4 to 12-inch diameter rock (Photos E & F). Those baskets moved least when backfilled and showed no appreciable settlement. Baskets backfilled with random material placed by loader filled quickly, but required a great deal of hand work to level rocks and fill voids within baskets. Fine rock and soil filtered out during backfill operations and caused baskets to move and settle more than anticipated prior to locking in place. The use of a 4-inch grading screen (common in construction trench fill operations) would benefit the gabion basket construction by creating a stockpile of clean rock fill for later placement by loader into baskets.

The wall was contoured to allow access to the area above the test pit for planned future phases of development work. Once Phase 3 activities are complete, the wall will be extended to the north and the terrace on top will be made level with the slope terrain.

Seeding will be performed on 500 to 1000 linear feet of road surfaces to evaluate the effect of man-placed re-vegetation. Previous road seeding on an abandoned switchback access road performed by UMCC in the early 1980's provided temporary vegetation until the natural grasses and plants eventually became established. This new seeding will be monitored to measure effectiveness on active sites. Empirical evidence on the existing 6.5 mile access road suggests that natural seeding is aggressive and the most effective and long-lasting form of disturbed area re-vegetation.

RECOMMENDATIONS

1. Proceed directly to Phase 3 activities. It is important to note that the planned area for Phase 3 is only 4 to 5 times larger than that excavated pit for Phase 1 (250 sy versus 60 sy). Phase 1 proved that the geologic estimates extrapolated from the earlier drilling and geology programs are highly accurate and that ore is effectively identified for further development. Additionally, the scope difference between Phase 1 and 2 would provide little significant new development information in terms of ore removal, hauling and reclamation activities. Removal of more test ore and additional verification of geology would be the major potential assets of a Phase 2 program. A larger program would also justify use of a track-mounted backhoe to test the feasibility of larger equipment, would expedite final area reclamation and provide for better overburden-to-ore ratios for reclamation work, and could justify the use of temporary portable conveyors to move ore and overburden at the site. These items would have the potential of reducing natural resource impacts (see also Item 5 discussion).

2. Based upon previous discussions with the USFS, both Phases 2 and 3 may require completion of an Environmental Assessment (EA) by the USFS. If this is the case, it is recommended that a single comprehensive evaluation be performed for all proposed work. EA work should begin in September 1997 to allow Phase 3 to start in July 1998.

3. Modify the POO to include 10-wheel, 12-ton trucks in lieu of proposed 5-ton dumps for short haul from the mine to the camp site. These vehicles can be safely used on the access road, double the rate of production, and reduce road impacts.

4. Perform additional road stabilization work next season to stabilize isolated eroding road sections and provide for well-drained road surfaces. These sections tend to be in draws that frequently run water or low points that collect run off. Option include: (a) more frequent bar ditches, (b) geowebs to contain soils and allow runoff with minimal sedimentation, (c) open graded rock overlaid with stabilized earth section that allows drain water to pass under roads with no sedimentation, or (d) soil-cement sections.

5. Include the use of temporary portable conveyors on the claims site and at the camp to move ore more effectively and reduce natural resource impacts. Conveyors would help inhibit the need to build additional roads on the claims for site development and could be incorporated into future mining plans to reduce traffic and natural resource impacts. A simple bin and conveyor at the camp site could also be used in lieu of a loading dock to off-load 12-ton trucks into larger 20 to 30 ton trucks for long-haul of ore. All components would be portable and could be removed from the forest upon completion of annual activities.

6. Continue and expand use of gabion basket walls as hill side stabilization for development activities. Although the feasibility of such an installation was initially questioned, this test program has proven that this system works remarkably well at the site. Modify placement to include stockpiling of natural rock from overburden excavated during pit excavation. Use of an economical construction sieve would speed up gabion erection and provide a superior product.

7. Monitor gabion wall test section and road seeding to evaluate the best methods for their use in future work at the site.

8. Modify cost estimates for future operations and reclamation bonding. The total installed cost of the gabion wall was approximately $80 per cubic yard, or about 50% of the cost estimated for construction and 35% of the cost used to calculate previous reclamation bonds.

CLOSURE

A copy of this report will be forwarded to the USFS so that they may begin EA work immediately. It is recommended that this document be made part of the POO as an addenda document, with more detailed information on use of conveyors and road stabilization methods to follow as a separate letter report. These items will not delay USFS field work needed for the EA since there is ample description of their intent in this document so that any additional field work needed this fall may be obtained.

Completion of Phase 1 activities fulfills UMCC's responsibility in performing reclamation work per commitments to the USFS and to its shareholders. Being a public company, UMCC will include a summary of this report in the next stockholder's letter along with USFS response to future work plans.

Complete documentation of all factual information provided in this report is included in Appendix A of this report. Please contact me if there is any other information required on this work.

Registered Professional Engineer (Civil)
CERTIFICATE NO.
20326
PETER M.
KANDARIS
Date Signed 9-26-97
ARIZONA U.S.A.

Prepared by: ______________________ 9/26/97
Date

Peter M. Kandaris, M.S., P.E.
Geotechnical Engineer
President, UMCC

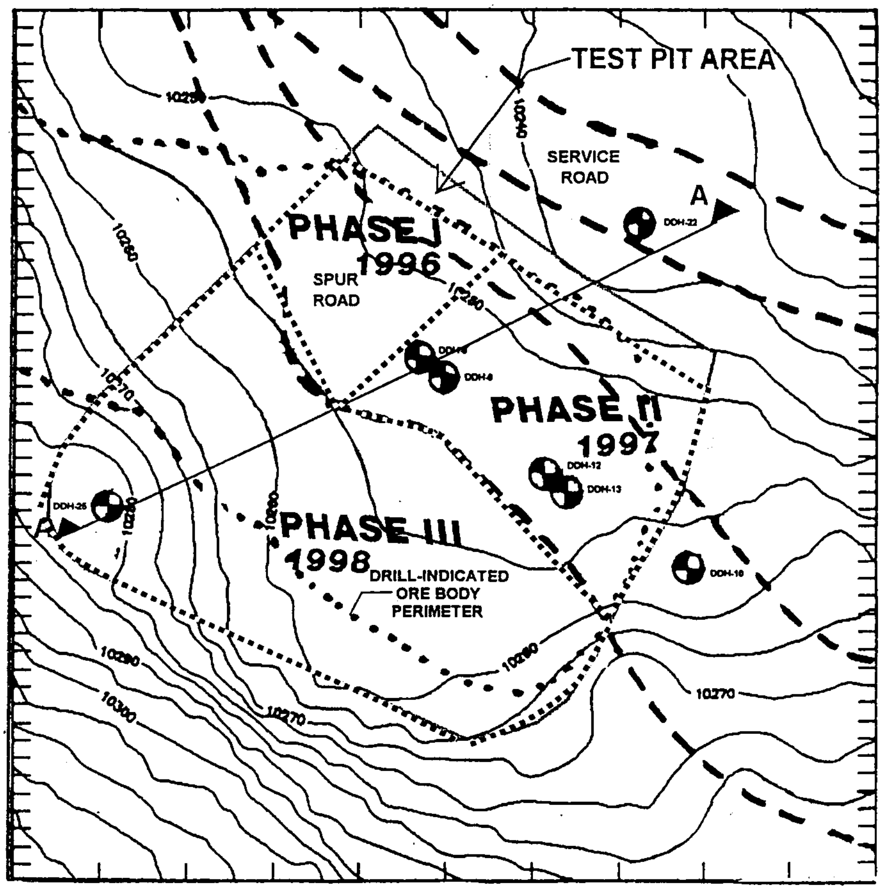


Figure 1

Proposed Test Pit Areas Per Phase

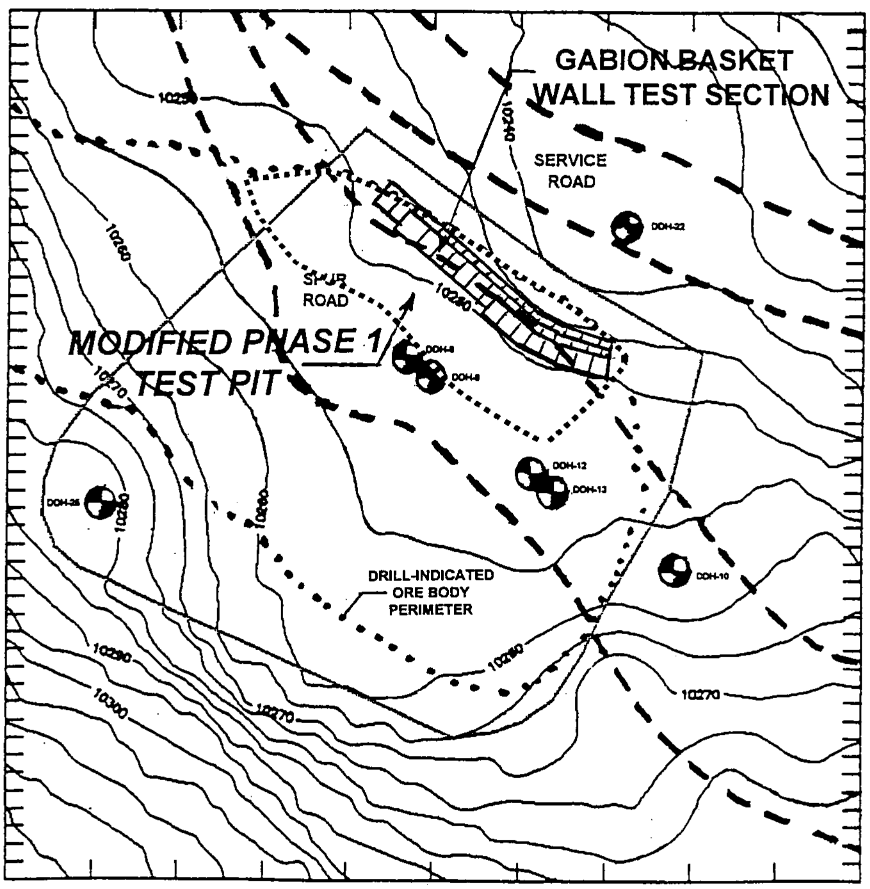
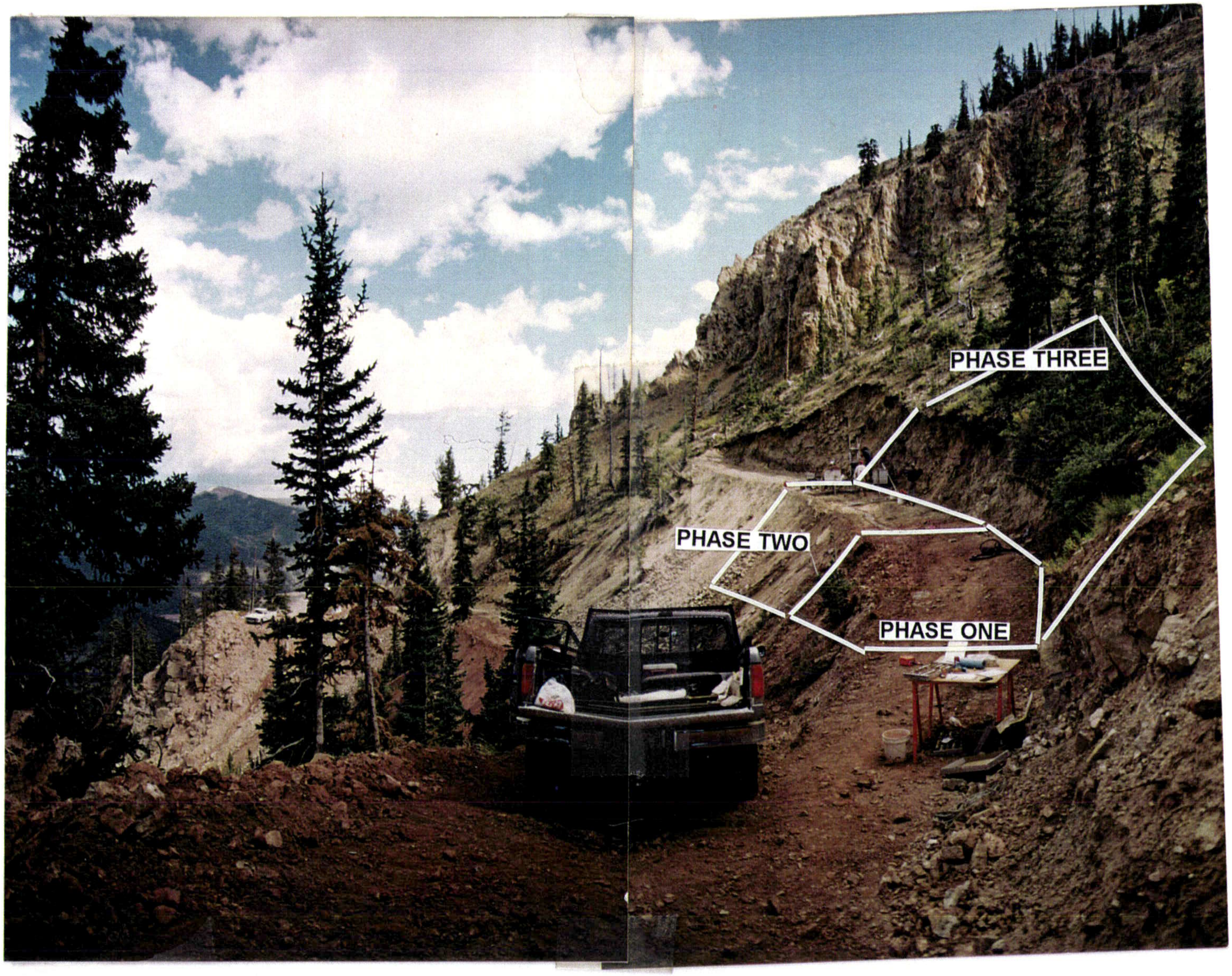


Figure 2

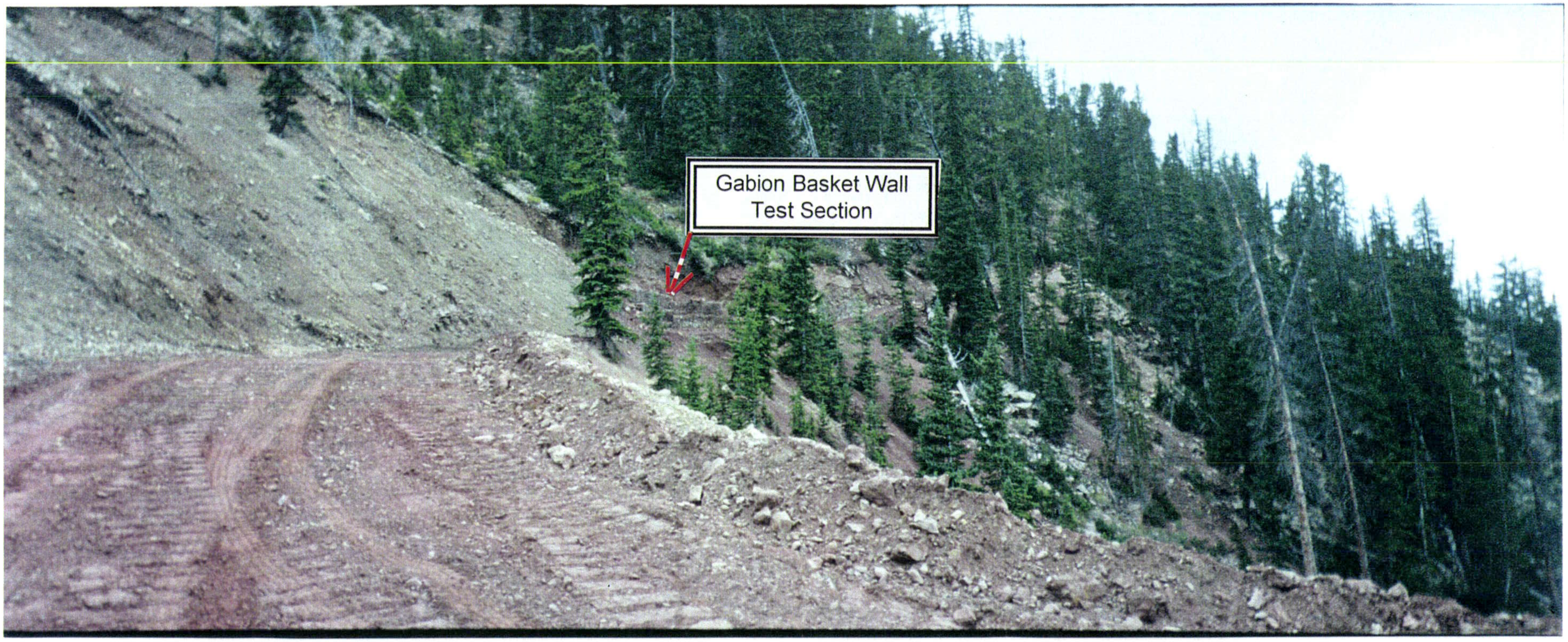
Modified Phase 1 Test Pit Area



<u>Photo A</u> **- Proposed Exploratory Test Pit Area per Phase**

<u>Photo B</u> - Hematite Bed Uncovered in Phase 1 Test Pit (west side of pit)

<u>Photo C</u> - Completed Gabion Basket Wall Test Section



<u>Photo D</u> **- Phase 1 Work Area with Gabion Basket Wall Test Section**

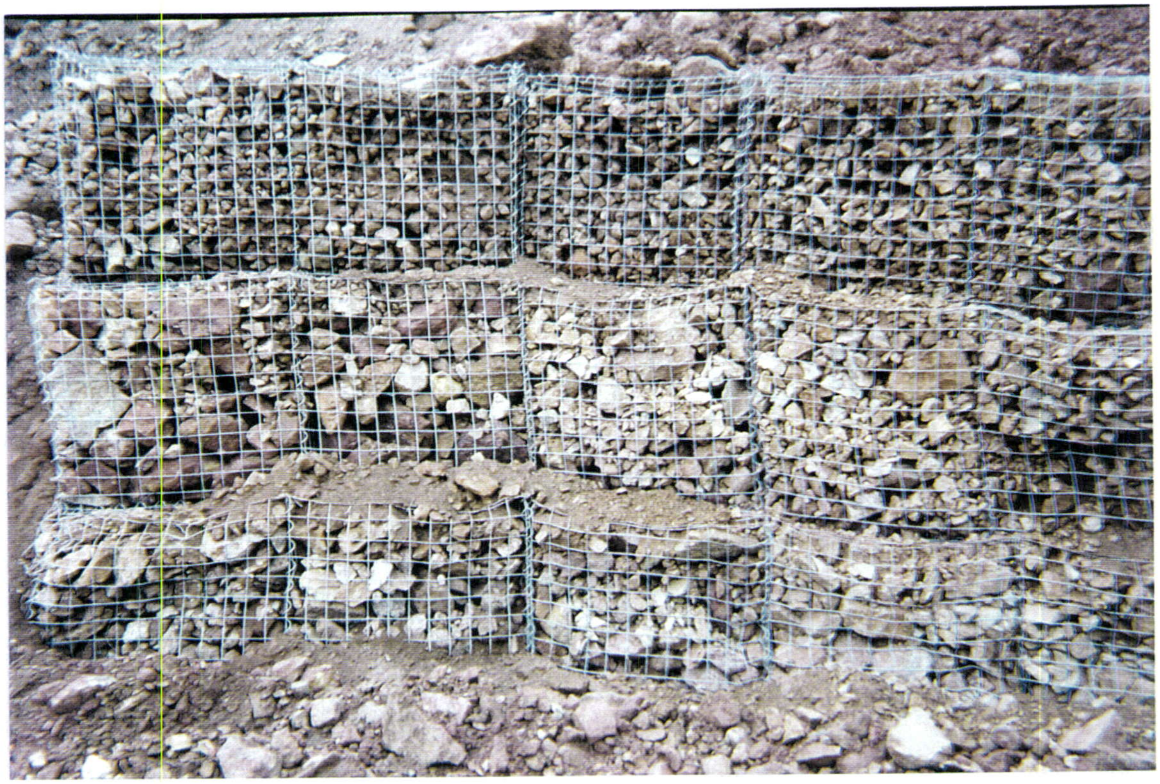


Photo E - Gabion Basket Wall Tiered Levels

Photo F - Gabion Basket Wall Rock Fill

Phase 1 Test Pit Raw Data and Calculations
Sunshine Quartz/Hematite Claims Project

Measured Data:

			Basis
Ore Hauled 1996	9.76	tons	3/97 ore valuation analysis
Ore Hauled 1997	35.7	tons	scale weight slips
Oversized load (OSL) volume	2	cy	estimate by operator using 1.5 cy loader
Standard load (StdL) volume	1.33	cy	estimate by operator, 2/3 OSL
Oversized loader trips to fill 1997 haul	13	OSL	operator count
In-bank weight of hematite ore	180	lb/cf	1996 summary geology report
1997 high-medium grade ore stockpile	23.5	StdL	count by operator
1997 low-medium grade ore stockpile	30	StdL	count by operator
gabion wall volume	26	cy	11-2 cy baskets, 4-1 cy baskets
overburden stockpiled	30	StdL	estimate - equal to med-low grade ore pile
boulder occlusion in ore body	4.6	cy	measured, approx 5' block, all sides
volume of pit (see sketch)	108	cy	see sketch for dimensions
fill for contour of slope above gabion wall fill (see sketch)	25	cy	see sketch for dimensions

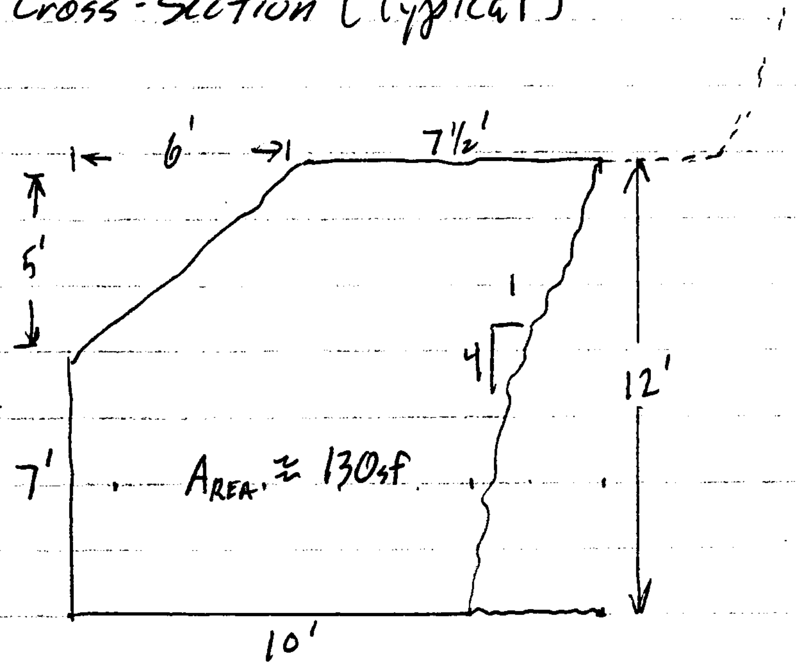
Analysis:

			Calculations
OSL weight	2.75	t/OSL	35.7t / 13StdL
Ore weight, loose in truck/loader	1.37	t/cy	2.75t/OSL / 2cy/OSL
Unit weight, loose ore in truck/loader	101.7	lb/cf	1.37t/cy x 2000#/t / 27cf/cy
expansion factor	1.77		180#/cf / 101/7 #/cf
Total Ore hauled	45.5	tons	9.76t + 35.7t
Weight of 1997 medium-high grade ore removed	42.9	tons	23.5StdL x 1.33cy/StdL x 1.37t/cy
Remaining 1997 medium-high grade ore in stockpile	7.2	tons	42.9t - 35.7t (visually verified as 2-3 OSL)
In-bank volume,1997 medium-high grade ore removed	17.7	cy	23.5StdL x 1.33cy/StdL x 1.77
In-bank volume,1996 medium-low grade ore removed	4.0	cy	9.76t x 2000#/t / 180#/cf / 27cf/cy
Weight of 1997 medium-low grade ore stockpiled	54.8	tons	30StdL x 1.33cy/StdL x 1.37t/cy
In-bank volume,1997 medium-low grade ore stockpiled	22.5	cy	54.8t x 2000#/t / 180#/cf / 27cf/cy
Total ore removed	107.5	tons	9.67t + 42.9t + 54.8t
% medium-high grade ore, by weight	40%		42.9t / 107.5t x 100
% medium-low grade ore, by weight	60%		(9.67t + 54.8t) / 107.5t x 100
overburden volume stockpiled	22.5	cy	22.5 cy (same as 1997 low-med ore)
Measured in-bank volume of excavated/fill material	97.4	cy	26cy + 4.6cy + 17.7cy + 4cy + 22.5cy + 22.5cy
Assumed non-accounted for material, 11%	10.7	cy	0.11 x 97.4cy
Total estimated & measured volume of excavated matl	108	cy	10.7cy + 97.4cy
Total volume of disturbed material	133	cy	25cy + 108cy
Total volume of backfilled material	74.7	cy	25cy + 4.6cy + 22.5cy + 22.5cy
Total volume of non-ore backfill material (overburden)	52.2	cy	25cy + 4.6cy + 22.5cy
overburden to ore ratio	1.18		52.2cy / (17.7cy + 4.0cy + 22.5cy)

Pit & Fill Cross-Section (Typical)

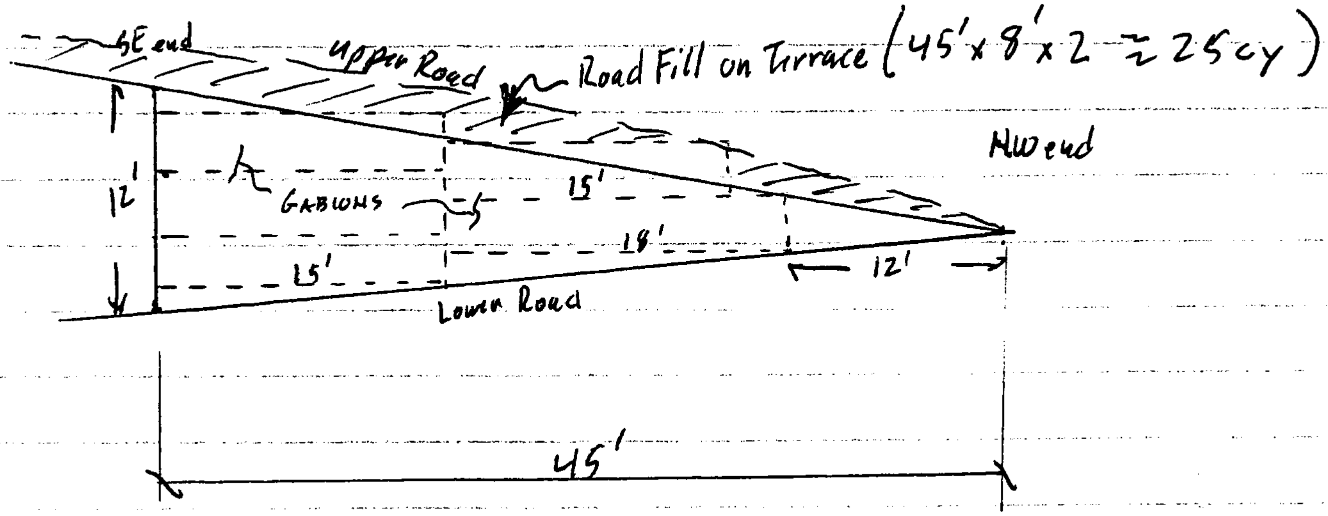
At SE End:
(idealized)

At NW End 45' away
Area = 0
(triangular area)
(wedge)



In-Bank Volume = $(130sf \times 45 ft\ length) \times \frac{1}{2} \times \frac{cy}{27cf} = 180cy$

Profile:



UMCC Ore Valuation Analysis 3/97

Item Description	Value	Unit	Value	Unit	Comments
Sample Ore Removal					
Quantity Hauled to Lehi, Utah	6.97	tons			Net weight from scales
Est. % remaining in Bluebell	40%				Conservative visual estimate
Total Sample Removed 10/96	9.76	tons	19516	lb	Conservative estimate
Sample Ore Testing					
Average Iron Oxide Content	37.12%				From assays on 13 representative samples of ore in Lehi
Total Iron Oxide in Sample			7244	lb	
Sample Ore Processing					
Percent iron oxide remaining after processing	80%				From 1995-96 bench test results
Total iron oxide from processing			5795	lb	
Sample Ore Valuation					
Low end gross value	$ 2.00	$/lb	$ 11,591		Specialty market evaluation of 2/1/97
High end gross value	$ 10.00	$/lb	$ 57,955		Specialty market evaluation of 2/1/97
Median gross value	$ 6.40	$/lb	$ 37,091		Specialty market evaluation of 8/23/96
Cost of removal/processing	0.95	$/lb	$ 5,506		Analysis of 9/96; increased by 50% to include marketing
Net Estimated Value of Sample Ore			**$ 31,585**		Based on median gross value

Note: This information is based on the best available data at the time of analysis. Actual results will depend on further sampling, processing and test marketing as proposed by UMCC in 1996 Plan of Operation and other correspondance.

1997 UMCC Equipment and Operations Data/Calcs

Activity	Equipment	Quantities		Time			Rate	
Overburden Removal	1.5 cy loader	22.5	cy	4	hrs		5.63	cy/hr
Ore Removal	1.5 cy loader	97.7	t	12	hrs		8.14	t/hr
Ore Haul	12 t trucks	35.7	t	7.67	hrs		4.66	t/hr
Gabion Wall Erection	laborers	26	cy	66	mh		0.39	t/hr
Backfill & Contour	1.5 cy loader	75	cy	3.5	hrs		21.4	cy/hr

Truck Loading	1.5 cy loader							
Truck 1		5	loads	50	min		10	min/ld
Truck 2		4	loads	30	min		7.5	min/ld
Truck 3a		2	loads	10	min		5	min/ld
Truck 3b*		2	loads	10	min		5	min/ld
		13	loads	100	min		7.69	min/ld

Travel time per truck: 1 hour each way to and from camp site to ore loading area

*Note: 20 minute delay for dead battery charge on loader not shown

Ore Quality Estimates from Drill Logs and Assays for Test Pit 1

Zone B Ore Type	Thickness (ft)	Iron Oxide Content (%)
High Grade	4.05	77.4
Medium Grade	1.05	34.9
Low Grade	6.48	12.5

all data from 1995 analysis of drill logs and assays

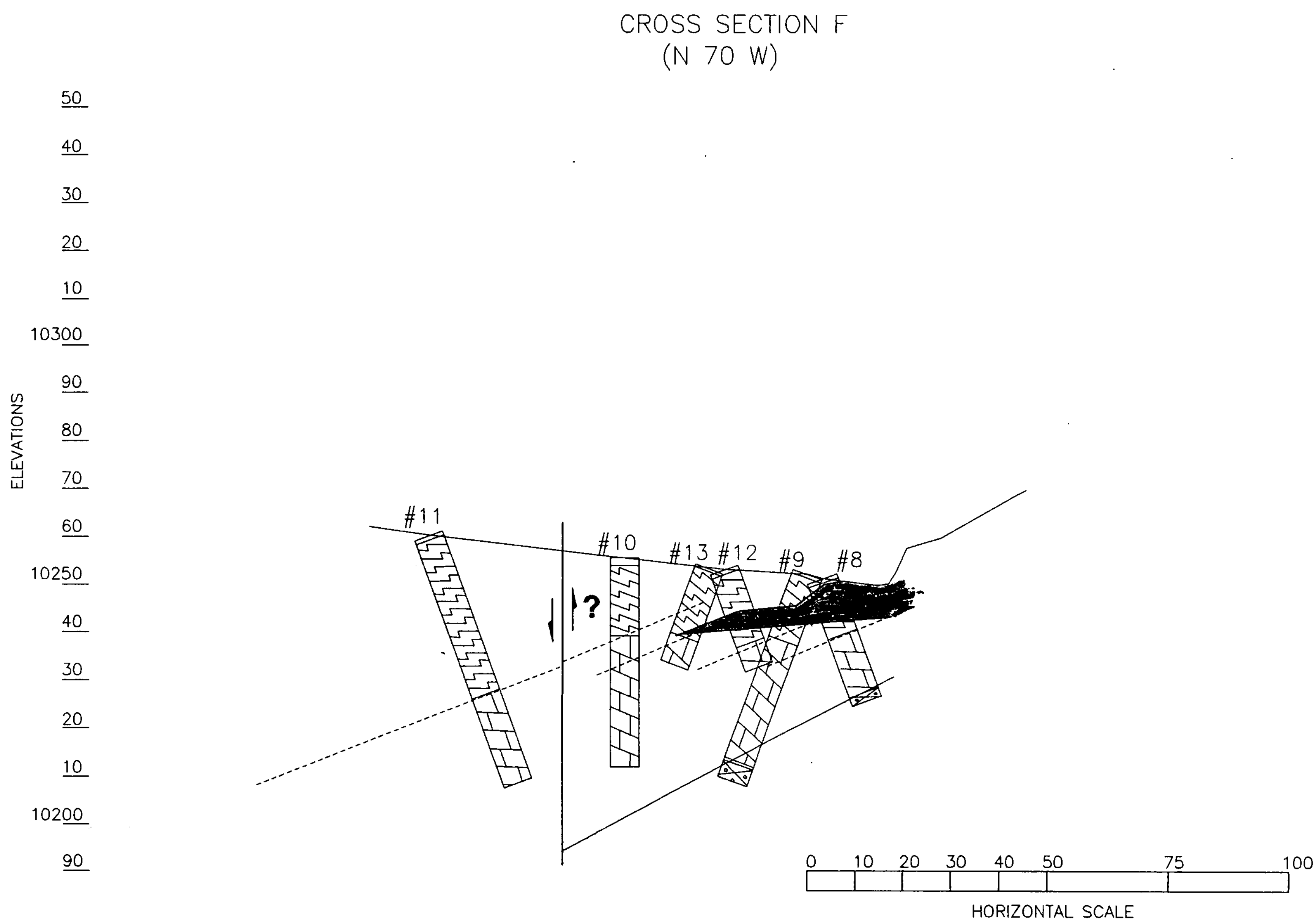
	Numerical Avg	Weighted Avg	Estimate	Use
Medium to High Grade	56.2	68.7	62.4	60.0
Medium to Low Grade	23.7	15.6	19.7	20.0

From 1995 Engineering Analysis of Core Drill Logs

Zone B

Boring	8			9			12			13		
	Thickness (ft)	Zone	% Fe2O3	Thickness (ft)	Zone	% Fe2O3	Thickness (ft)	Zone	% Fe2O3	Thickness (ft)	Zone	% Fe2O3
	0.3	1		1.2	1		3.6	1		7.0	1	
	0.9	6	23.5	0.4	4		0.5	2		0.5	2	
	1.0	8	57.7	0.8	8		0.5	3		0.2	8	
	1.1	6	26.2	0.7	4		1.7	3	6.6	0.4	10	
	3.3	10	86.5	0.9	1		1.0	6	32.1	0.1	10	
			76.2	1.2	2		0.6	8	86.6			
	1.3	9	70.8	4.9	8		2.1	10	88.7			
	0.3	8	74.6	3.2	1		0.6	7	84.8			
	1.7	1	6.0				0.4	1	22.3			
	0.7	6	31.9				0.5	6	65.2			
	0.6	8	70.5				1.6	1				
	0.5	1										
TOTALS												
7-10	6.5		72.7	5.7			3.3		86.7	0.7		
6	2.7		27.2	0			1.5		48.7	0		
1-5	2.5		6.0	7.6			8.3		14.5	7.5		

	Thickness (ft)	Avg(%)
7-10	4.05	77.4
6	1.05	34.9
1-5	6.48	12.5



CROSS SECTION F
(N 70 W)
ELEVATIONS
50
40
30
20
10
10300
90
80
70
60
10250
40
30
20
10
10200
90
#11
#10
#13
#12
#9
#8
?
0
10
20
30
40
50
75
100
HORIZONTAL SCALE

FIGURE 5

This page is a reference page used to track documents internally for the Division of Oil, Gas and Mining

Mine Permit Number S0130002 Mine Name SunShine/Hematite
Operator Uintah Mountain Copper Date 11-07-1997
TO ______ FROM ______

__CONFIDENTIAL __BOND CLOSURE __LARGE MAPS X EXPANDABLE
__MULTIPUL DOCUMENT TRACKING SHEET __NEW APPROVED NOI
__AMENDMENT _OTHER ______

Description YEAR-Record Number

__NOI X Incoming __Outgoing __Internal __Superceded

Engineering AnAysis Report

__NOI __Incoming __Outgoing __Internal __Superceded

__NOI __Incoming __Outgoing __Internal __Superceded

__NOI __Incoming __Outgoing __Internal __Superceded

__TEXT/ 81/2 X 11 MAP PAGES __11 X 17 MAPS __LARGE MAP

COMMENTS: ______

CC: ______